

Notice of Allowability

Application No.

10/813,499

Examiner

Allen C. Ho

Applicant(s)

YOON ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed on 18 June 2007.
2. ☒ The allowed claim(s) is/are 1-3,5,8 and 13.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Matthew F. Jodziewicz (Reg. No. 30,858) on 01 August 2007.

The application has been amended as follows:

- (1) Claim 1, line 21, --said-- has been inserted after "comprising".
- (2) Claim 1, line 25, "an x-ray" has been replaced by --the radiation--.
- (3) Claim 2, line 1, "detector" has been replaced by --sensor--.
- (4) Claim 3, line 1, "detector" has been replaced by --sensor--.
- (5) Claim 5, line 1, "detector" has been replaced by -- sensor--.
- (6) Claim 13, line 5, "root" has been replaced by --roots--.
- (7) Claim 13, line 5, "tooth" has been replaced by --teeth--.
- (8) Claim 13, line 23, "root" has been replaced by --roots--.
- (9) Claim 13, line 23, "tooth" has been replaced by --teeth--.
- (10) Claim 13, line 38, "root" has been replaced by --roots--.
- (11) Claim 13, line 38, "tooth" has been replaced by --teeth--.

2. The following is an examiner's statement of reasons for allowance:

With regard to claims 1-3, 5, and 8, the prior art discloses a digital radiation sensor that comprises: a housing containing at least one generally planar radiation detector providing a digital imaging surface, the housing conforming to the anatomic curvatures of the human maxillary and mandibular arches of an average patient; and at least one radio-opaque fiducial element of known shape, size, and location in a known spatial position to the digital imaging surface. However, the prior art fails to disclose a radiation sensor that comprises a housing containing at least one generally planar radiation detector providing a digital imaging surface and at least one radio-opaque fiducial element of known shape, size, and location embedded on, in, or under the housing as claimed.

With regard to claim 13, the prior art discloses a method for correcting distortions in a radiation sensor used with a digital radiography imaging system for intraoral placement in a mouth of a patient for production of radiographs of teeth and their anatomical support structures of bone, periodontal and gingiva around the root and cervical region of the tooth, the method comprises the step of providing a housing containing at least one generally planar radiation detector providing an imaging surface oriented toward a radiation source, the housing conforming to the anatomic curvatures of the human maxillary and mandibular arches of an average patient; and placing at least one radio-opaque fiducial element of known shape, size, and location in a permanently fixed spatial position to the detector imaging surface, intermediate a radiation source and the surface of the at least one radiation detector, and placed in a fixed known spatial orientation to the detector imaging plane. However, the prior art fails to disclose the step of placing, by embedding on, or placing in or under the housing, at least one radio-

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opaque fiduciary element of known shape, size, and location in a permanently fixed spatial position to the detector imaging surface as claimed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Amendment

3. Applicant's amendments filed 18 June 2007 with respect to claims 1 and 13 have been fully considered and are persuasive. The objection of claims 1 and 13 has been withdrawn.

4. Applicant's amendments filed 18 June 2007 with respect to claims 1-3, 5, 8, and 13 have been fully considered and are persuasive. The rejection of claims 1-3, 5, 8, and 13 under 35 U.S.C. 112, first paragraph, has been withdrawn.

5. Applicant's amendments filed 18 June 2007 with respect to claims 1-3, 5, 8, and 13 have been fully considered and are persuasive. The rejection of claims 1-3, 5, 8, and 13 under 35 U.S.C. 112, second paragraph, has been withdrawn.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- (1) Kay (U. S. Patent No. 7,140,769 B2) disclosed a radiation sensitive recording plate with orientation identification marker.
- (2) Lai (U. S. Patent No. 6,960,020 B2) disclosed an image-positioning method and system.
- (3) Launay *et al.* (U. S. Patent No. 6,652,142 B2) disclosed a method of calibration for reconstructing three-dimensional models.
- (4) Bani-Hashemi *et al.* (U. S. Patent No. 6,229,873 B1) disclosed a method for aligning an apparatus for superimposing x-ray and video images.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen C. Ho whose telephone number is (571) 272-2491. The examiner can normally be reached on Monday - Friday from 9:00 am - 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Allen C. Ho/
Primary Examiner
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01 August 2007